

*Observations of the Leonid Meteors of 1899 made at the Royal Observatory, Greenwich.**(Communicated by the Astronomer Royal.)*

Twenty meteors were observed in the morning of November 16, two of these during a partial break between 4.30 and 4.40 A.M., and the other eighteen during a clear period between 5.30 and 6.15 A.M. Thirteen of these meteors conformed to the *Leo* radiant. A continuous watch by three observers was kept from 11 P.M. to 6 A.M. on November 14-15 and November 15-16, but dense fog on the former night and cloud on the latter prevented any observations except during the above-mentioned periods.

Arrangements were also made to photograph meteors on the two nights, but owing to the weather no results were obtained.

A watch was also kept for the Bielid meteors on the nights of November 23 to 27, but the sky was generally covered with cloud, and no meteors were seen.

The following table shows the number of meteors seen at the Leonid epoch in each of the years 1887 to 1899 at Greenwich:—

Year.	Date of Observation.	Length of effective Watch.	Total Number of Meteors.	Number of Leonids.	Remarks.	No. of Observers.
1887	Nov. 15	A few minutes	2	1	Cloudy	1
1888	...	...	...	...	Quite cloudy	...
1889	Nov. 12-13	2 ^h	7	0	Cloudy generally	1
1890	...	...	...	...	Quite cloudy	...
1891	Nov. 13-14	2 ^h	0	0	Generally clear; bright moonlight	1
1892	Nov. 12-13	1½ ^h	0	0	Thin cloud	1
	„ 14-15	Brief	1	0	Cloudy generally	1
1893	Nov. 12-13	3 ^h	21	4	...	1
	„ 13-14	1½ ^h	9	1	Watch suspended on account of cloud	2
1894	...	...	...	...	Cloudy throughout	...
1895	Nov. 12-13	4 ^h	30	5	...	2
	„ 13-14	2 ^h	19	7	Observations stopped by cloud	2
1896	Nov. 12-13	2 ^h	8	2	...	3
	„ 15	1½ ^h	10	5	...	1
1897	Nov. 14	2 ^h	14	8	...	3
1898	Nov. 15-16	Brief	1	1	Cloudy	1
1899	Nov. 16	1 ^h	20	13	Cloudy	3+

Royal Observatory, Greenwich:
1899 December 8.

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Observations of the Leonids of 1899, made at the University Observatory, Oxford. By H. H. Turner, Savilian Professor.

Preparations were made to observe the expected shower, but came to nothing. Mr. Bellamy had about seven cameras ready and four in reserve, to photograph the trails in different parts of the sky, and exposed some plates on November 14, but with no result. Messrs. H. Mullis, B. Gray, and E. Gray kept a regular watch on the sky in turns of half an hour each from 10^h.30 to 18^h.0 on the nights of November 14 and 15; and about thirty members of the University passed these nights at the Observatory, some of them watching, others sleeping on the floor of the Lecture-room, so that they might be quickly roused and carry the news to different colleges if there was a sensational shower. But nothing out of the common was observed. The following notes of details may be recorded:—

November 13. Cloudy at midnight. From 15^h 45^m to 16^h 15^m, G.M.T., 5 Leonids and 2 other meteors seen by Professor Turner.

Nov. 14. Cloudy from 10^h $\frac{1}{2}$ to 14^h. Cleared between 14^h and 15^h, and became a splendid night. The Moon and bright stars seen close to horizon. Moon set at 17^h.

The following meteors were counted by Messrs. H. Mullis, B. Gray, and E. Gray:—

G.M.T. Nov. 14. h h	Observer.	Number Leonids.	Of Others.
15 to 15 $\frac{1}{2}$	H.M.	2	—
15 $\frac{1}{2}$ „ 16	B.G.	4	1
16 „ 16 $\frac{1}{2}$	E.G.	3	2
16 $\frac{1}{2}$ „ 17	H.M.	8	—
17 to 17 $\frac{1}{2}$	B.G.	9	—
17 $\frac{1}{2}$ „ 18	E.G.	18	—
18 „ 18 $\frac{1}{2}$	H.M.	3	—

These observers were watching the radiant and its neighbourhood. A few other meteors not included in above were observed by Mr. Bellamy, who was in charge of the cameras in the dome, Mr. H. Hilton, Fellow of Magdalen, and Councillor G. C. Druce, who were with him, as follows:—

Std. Time (Greenwich).			
h	m	s	
6	48	40	3rd mag. midway ζ and μ Leonis towards 20 Leonis path 12° long, rapid.
8	11	10	2° north of μ Leonis and R.A. 10 ^h .
8	12	25	East to west through Orion, long trail.
8	16	0	Near Procyon to Sirius, long trail.
8	25	10	In Leo.
8	56	10	Large meteor though Ursæ Min.
9	16	35	Near the zenith, the brightest seen during the night; caused a sudden glare of light over the landscape and left a trail for some minutes.